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COR-1228
Copy 5 of 5.
18 July 1961

MEMORANDUM FOR : Deputy Director (Plans)

THROUGH : Acting Chief, Development Projects Division

SUBJECT : CORONA

1. Dr. Charyk is under an instruction from Dr. Killian to use caution in committing the new C Triple Prime camera to operational use since the present C Prime camera has demonstrated reasonably good reliability. Because of the interpretation of this instruction on the part of [redacted] there is some question that any of the new C Triple Prime cameras will be launched this summer during the period when its maximum potential resolution can be exploited. The C Triple Prime camera with emulsion SO-132 is usable through mid-September only and for best performance should produce resolutions in the order of 250 lines per millimeter. After that time we will be forced to use emulsion SO-130 which will produce a resolution about 100 lines poorer, or approximately that which would be achieved with the present C Prime camera, using the same emulsion. SO-130 has been utilized in the last two successful operations and qualitatively appears to produce results at this level of performance. This is to be compared with the approximate 100 lines per millimeter performance of the present C Prime camera with emulsion SO-188 used in the first two successful missions.

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2. Coverage-wise, we have achieved so far in the order of 13,000,000 square miles of plottable coverage. This is partly redundant but it appears that we have already seen about one-half of the total area of interest. Actually, continued use of the present camera will produce increasingly redundant coverage until the three and four day operational lifetime is achieved. So far we have achieved three two-day and one three-day mission in the past ten launches.

3. In view of the nature of the items so far discovered, I raise the question as to whether at this time it would be more desirable to continue the search for additional items of the same nature with reasonable expectation of reliable performance, or to entertain additional risk with the prospect of vastly increasing our knowledge of the exact nature and status of the items seen. I have discussed this point with Messrs. Reber and Lundahl who express personal views inclining to the latter course.

4. In order that the use of the new C Triple Prime camera be undertaken without recklessness, its status needs to be reviewed. This raises

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25X1A a further issue in terms of our relationships with [redacted] We have, up to this point, operated under an unwritten but perfectly acceptable arrangement wherein Lee is the authority on all matters relating to vehicles and launching and we held authority over matters involving payload. He has now assumed this latter role as well. Specifically, without prior consultation with us, he has ordered the first Triple Prime camera scheduled for launch on 1 August to be displaced by a C Prime camera. While I cannot at this moment argue conclusively against this decision, we were informed last week by Lockheed that such a decision need not be made until the end of this week when an agreed upon test program for the new camera was expected to have ended. It is true that at this moment the new camera is not completely debugged. However, so far as I am aware, there is only one remaining change item, i.e., the main torque motor housing which has failed on two occasions during simulated ascent acceleration. This is not a catastrophic failure, however, in that on both occasions the instrument was operated through 75 normal cycles after the failure had occurred, which was normal testing procedure.

5. At the present time, the best results we could possibly achieve in terms of using the new camera would be on launches now scheduled for 1 August, 25 August, 31 August, and 8 September. We have apparently lost the first of these. We run the risk of continued delays on the others since the qualification test camera is this week being subjected to its third full qualification run in addition to numerous other vibration tests. It is entirely possible that additional failures may be encountered in this unplanned extended testing which with a conservative point of view could cause continued postponement in operational use beyond mid-September.

6. In addition to this issue with Lee on the use of the C Triple Prime camera, there are also two other points of disagreement on the MURAL stereo program. Dr. Charyk and I had agreed on the desirability of the third, or framing, camera in this system, which Lee has been against from the outset. Initially I was not in favor of this third camera installation for the same reasons as were originally cited by
25X1A [redacted] I have since been convinced that this would be a highly desirable adjunct if at all possible. There has been no action on this item by the contractors concerned for approximately two months. If this situation continues, we will have no choice but to omit this camera since it will be too late to incorporate it.

7. The second point on the MURAL program involves the vehicle weight. In November of last year when the stereo system was first proposed, the vehicle on orbit weighed 2,450 and the payload 641 pounds,

although a conservative figure of 670 pounds was used for calculation purposes. The present estimate is 2,544 pounds and 719 pounds payload weight. In order to successfully achieve orbit, the perigee altitude has been reduced from 150 to 130 miles and there is serious consideration being given to utilizing the Agena dual burn to achieve a 75° orbit inclination angle. Although I have never been able to get a concise answer from Lockheed, on the basis of information I have been furnished it appears that the velocity margin over and above that absolutely needed to reach orbit is in the order of 900 feet per second for CORONA, 450 feet per second for ARGON, and 250 feet per second for MURAL. I view this as a problem of some magnitude and firmly believe that a major weight reduction program of the type engaged in by [redacted] some two years ago with weekend visits to Sunnyvale with tin snips and files is definitely in order.

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8. Lee's belief is that this problem is of no consequence. This entire situation places us in the position of being quite ineffective in any role other than acquiescing to continued use of the present camera until the coming autumn when the C Triple Prime camera cannot be expected to perform much better than the C Prime because of the limitation on film emulsion. This also leaves us in a position of ineffectiveness in the direction of the MURAL payload.

9. If this situation is unsatisfactory to you, I suggest that the question of the conservative versus a more optimistic approach be reopened with Dr. Killian either by yourself or Dr. Charyk. This, I think, will improve greatly the chances that at least two C Triple Prime cameras can be launched before mid-September. If we are to exert anything other than a completely passive role from here on, a meeting between yourself and Dr. Charyk resulting in a reaffirmation of the relative roles of SSD and ourselves is absolutely necessary. A very restricted meeting of the type formerly held on this program to discuss some forthcoming and fairly important issues, including the MURAL program, scheduling of payloads through the fall and winter and operations to utilize the remaining C Triple Prime cameras, might be an effective mechanism.

10. I hesitate to make one final remark, but I am sure this consideration is only a subconscious one. Nonetheless, I have heard it from several sources recently. This remark is to the effect that the C Triple Prime camera is very likely to be as good as E-5 and E-6 and I have heard directly from Dr. Fubini the statement that if the C Triple Prime camera, particularly in the MURAL configuration, seems to be working out, it would be sensible to cancel the E-5 and E-6 variants of the SAMOS program.

SIGNED
EUGENE P. KIEFER
SA/TA/DPD-DD/P

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